

Claims

1. A rake receiver comprising impulse response measurement means (22) and path allocation means (23) for allocating paths to rake fingers (21a, 21b, 21c, 21d) in
5 dependence on the output of the impulse response measurement means (22),
characterised in that the path allocating means (23) is configured to compare the magnitudes of pairs of peaks, represented in the output of the impulse response measurement means (23), and ignore the lesser member of a pair for the allocation of paths to rake fingers (21a, 21b, 21c, 21d), if the magnitudes of the pair differ in a
10 predetermined manner so as to exclude spurious paths, the pairs comprising peaks temporally separated by a period characteristic of the separation of main and side lobes of filters for producing the baseband pulse shape expected by the receiver.
2. A rake receiver according to claim 1, wherein said predetermined manner
15 comprises the magnitude of their ratio being within a predetermined range.
3. A rake receiver according to claim 2, wherein said predetermined manner comprises the magnitude of the result of their ratio less a reference value being less than a threshold value.
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4. A rake receiver according to claim 3, wherein the reference value corresponds to the theoretical lobe ratio increased by an amount attributable to the uncertainty introduced by noise.
- 25 5. A rake receiver according to claim 4, wherein said reference value comprises half the sum of the upper and lower bounds of a confidence interval in the probability density for the lobe ratio, the confidence interval being not less than 90% and preferably about 95%.
- 30 6. A rake receiver according to claim 5, wherein said threshold value is half the width of said confidence interval.

7. A rake receiver according to claim 1, wherein said pulse shape is a raised cosine.

8. A rake receiver according to claim 1, wherein said predetermined manner
5 comprises meeting the criterion:-

$$\left| \frac{M_{p1}}{M_{p2}} - R \right| < I$$

where M_{p1} and M_{p2} are the magnitudes of the peaks of a pair, R is a reference ratio for a main lobe and a side lobe and I is a confidence factor.

10 9. A rake receiver according to claim 8, wherein R is approximately 0.175, preferably 0.1746, and I is approximately 0.065, preferably 0.0643.

10. A mobile phone network receiver including a receiver according to any preceding claim.

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11. A rake receiver for receiving CDMA signals, the receiver comprising a baseband signal processor configured:

to implement a plurality of rake fingers,

to perform impulse response measurement, and

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to perform path allocation for allocating paths to rake fingers in dependence on the result impulse response measurement,

wherein said path allocation comprises:

comparing the magnitudes of pairs of peaks, identified by said impulse response measurement, and

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ignoring the lesser member of a pair of peaks for the allocation of paths to rake fingers, if the magnitudes of the peaks of said pair differ in a predetermined manner, so as to exclude spurious paths, the pairs comprising peaks temporally separated by a period characteristic of the separation of main and side lobes of filters for producing the baseband pulse shape
30 expected by the receiver.

12. A rake receiver according to claim 11, wherein said predetermined manner comprises the magnitude of their ratio being within a predetermined range.

13. A rake receiver according to claim 12, wherein said predetermined manner
5 comprises the magnitude of the result of their ratio less a reference value being less than a threshold value.

14. A rake receiver according to claim 13, wherein the reference value
10 corresponds to the theoretical lobe ratio increased by an amount attributable to the uncertainty introduced by noise.

15. A rake receiver according to claim 14, wherein said reference value
comprises half the sum of the upper and lower bounds of a confidence interval in
the probability density for the lobe ratio, the confidence interval being not less than
15 90% and preferably about 95%.

16. A rake receiver according to claim 15, wherein said threshold value is half
the width of said confidence interval.

20 17. A rake receiver according to claim 11, wherein said pulse shape is a raised cosine.

18. A rake receiver according to claim 11, wherein said predetermined manner
comprises meeting the criterion:-

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$$\left| \frac{M_{p1}}{M_{p2}} - R \right| < I$$

where M_{p1} and M_{p2} are the magnitudes of the peaks of a pair, R is a reference ratio
for a main lobe and a side lobe and I is a confidence factor.

19. A rake receiver according to claim 18, wherein R is approximately 0.175,
30 preferably 0.1746, and I is approximately 0.065, preferably 0.0643.

20. A mobile phone network receiver including a receiver according to any one of claims 11 to 19.